



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/697,240

10/31/2003

Satoshi Arakawa

Q78212

9031

23373 7590 01/24/2008  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

TORRES, JOSE

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

01/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/697,240

Applicant(s)

ARAKAWA, SATOSHI

Examiner

José M. Torres

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Comments***

1. The Amendment After Final and the Notice of Appeal filed on December 17, 2007 has been entered and made of record.

### ***Response to Amendment***

2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Response to Arguments***

#### **Preliminary Matters**

3. Examiner's acceptance of the Drawings filed on October 31, 2003 is being made of the attached Office Action Summary, in order to comply with Applicant's request. However, the Claim Objections made on the Final Action mailed on June 15, 2007 has not yet been addressed by Applicant, therefore, the objections are maintained as stated below.

#### **Claim Rejections under 35 U.S.C. § 103**

4. Applicant's arguments, see Remarks Page 2 through Page 6, filed on December 17, 2007, with respect to the rejection(s) of claim(s) 1-13 under 35 U.S.C. § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

Art Unit: 2624

However, upon further consideration, a new ground(s) of rejection is made in view of different interpretation of previously applied reference (U.S. Pat. No. 7,184,814 to Lang et al.). See Claim Rejection under 35 U.S.C. § 102 Section above.

### ***Claim Objections***

5. Claims 4 and 12 are objected to because of the following informalities:
- Claim 4 is objected to as being a duplicate of claim 3.
  - Claim 12 lines 1-2: "wherein the information at least one of information" should be -- wherein the information is at least one of information --

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 3-6, and 9-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Lang et al. (U.S. Pat. No. 7,184,814).

Re claim 1: Lang et al. disclose a diagnostic imaging apparatus (Computer, Col. 29 lines 49-60) comprising: a position-of-interest determination unit ("Point Cluster-Technique") which determines a plurality of positions ("marker's local coordinates") in a plurality of images ("X-ray or CT scan images taken at different times  $t$ ") of a predetermined part ("joint") of an object which are taken during the movement ("subject performing activity ... joint motion") of the predetermined part, to be positions of interest in the plurality of images, where the plurality of positions in the plurality of images correspond to a predetermined position in the predetermined part (Col. 34 line 18 through Col. 35 line 36); a characteristic-quantity calculation unit which calculates a characteristic quantity ("Angular Movement") indicating a positional relationship between the positions of interest in the plurality of images (Col. 36 lines 1-59); and an automatic diagnosis unit ("PC") which outputs information ("Computer Readout") on said predetermined part of said object, based on said characteristic quantity (Col. 29 lines 49-60. It should be understood that the method describe throughout the Specification, states that the markers are utilized during the movement of a human joint, such as a knee, and a computer readout shows a cartilage thickness map of the degenerated cartilage. In addition, the method is provided for aiding in assessing the condition of cartilage in a joint of a mammal.).

Re claims 3 and 4: Lang et al. disclose wherein said predetermined part is a joint of a human body ("Joint of a patient", Col. 15 lines 6-14).

Re claim 5: Lang et al. disclose wherein said plurality of images are a plurality of radiographic images which are taken by applying radiation ("MRI, CT, Ultrasound imaging techniques, X-ray") to said predetermined part during the movement of the predetermined part ("Gait Analysis", Col. 31 line 48 through Col. 32 line 48).

Re claim 6: Lang et al. disclose wherein a marker is attached to said predetermined part (FIG. 18A), said plurality of images are a plurality of radiographic images ("MRI, CT, Ultrasound imaging techniques, X-ray"), and said position-of-interest determination unit determined the positions of images of said marker to be said positions of interest, where said images of the marker are respectively formed in said plurality of radiographic images by radiation which has passed through the marker (Col. 34 line 18 through Col. 35 line 36, Col. 42 line 61 through Col. 43 line 16).

Re claim 9: Lang et al. disclose wherein at least three images are taken during the movement of the predetermined part ("Gait Analysis Activities", Col. 32 lines 30-48).

Re claim 10: Lang et al. disclose wherein the diagnostic imaging apparatus is an automatic diagnostic imaging apparatus ("a computer ... produces a computer readout", Col. 29 lines 48-60).

Re claim 11: Lang et al. disclose wherein the diagnostic imaging apparatus is a radiographic imaging apparatus (The computer used for aiding in the assessment of the condition of the cartilage uses MR image data, see Col. 29 lines 43-47).

Re claim 12: Lang et al. disclose wherein the information is at least one of information indicating whether the predetermined part is normal, information indicating a degree of abnormality of the predetermined part, and the characteristic quantity (Once the angular movement of the markers are measured, this data is utilized to determine the condition of the part in question, see at least Col. 22 lines 19-42, Col. 24 lines 1-9; Col. 31 line 48 through Col. 32 line 48, Col. 34 line 18 through Col. 36 line 46.).

Re claim 13: Lang et al. disclose wherein the plurality of images of the predetermined part of the object are taken during movement through at least three positions ("standing still, laying down, walking or running, flexing, etc.") of the predetermined part (Col. 32 lines 30-47).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang et al. in view of Kido et al. (U.S. Pat. No. 5,732,149). The teachings of Lang et al. have been discussed above.

As to claims 7 and 8, Lang et al. does not explicitly disclose said plurality of radiographic images are taken by using a solid-state radiation detector which generates and stores electric charges when the solid-state radiation detector is irradiated with radiation.

Kido et al. teaches said plurality of radiographic images are taken by using a solid-state radiation detector (FIG. 4, "Radiation Image Conversion Panel 4") which generates and stores electric charges when the solid-state radiation detector is irradiated with radiation (Col. 7 lines 5-26).

Therefore, in view of Kido et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lang et al. by incorporating the radiation conversion panel which accumulates energy when irradiated with radioactive rays in order to provide an enhancement in image extraction and create a latent image of the part of the human body exposed to radiation (Col. 6 lines 1-4 and Col. 7 lines 15-26).



**Conclusion**

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pugh disclose a Computerized Video Gait and Motion Analysis System and Method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José M. Torres whose telephone number is 571-270-1356. The examiner can normally be reached on Monday thru Friday: 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMT  
01/17/2008

  
JINGGE WU  
SUPERVISORY PATENT EXAMINER